

REMARKS

The following remarks are made in response to the Office Action mailed August 15, 2005. Claims 1-20 were rejected. Claims 1-3, 9, and 15-17 have been amended. Claims 1-20 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 102

Claims 1-20 are rejected under 35 U.S.C. §102(b) as being anticipated by Jenkins et al. (U.S. Patent No. 6,002,868).

Claim 1 recites, *inter alia*:

a first expansion slot coupled to the first I/O controller; and
a test module card directly coupled to the first expansion slot;
wherein the test module card is configured to obtain access to a
portion of the memory from an operating system, and wherein the test
module card is configured to cause tests to be performed on the portion
of the memory using direct memory access (DMA) subsequent to
obtaining access to the portion of the memory.

Jenkins does not teach or suggest “wherein the test module card is configured to obtain access to a portion of the memory from the operating system, and wherein the test module card is configured to cause tests to be performed on the portion of the memory using direct memory access (DMA) subsequent to obtaining access to the portion of the memory” as recited in claim 1. At column 3, lines 55-57, Jenkins teaches that “[t]he PCI-to ISA bridge 122 integrates many of the common ISA peripherals, such as a DMA (Direct Memory Access) Controller” This portion of Jenkins only identifies the existence of a DMA controller and does not teach or suggest “wherein the test module card is configured to obtain access to a portion of the memory from the operating system, wherein the test module card is configured to cause tests to be performed on the portion of the memory using direct memory access (DMA) subsequent to obtaining access to the portion of the memory” as recited in claim 1. Further, Jenkins does not appear to teach or suggest that diagnostic application 150 is “configured to obtain access to a portion of the

memory from the operating system” or is “configured to cause tests to be performed on the portion of the memory using direct memory access (DMA) subsequent to obtaining access to the portion of the memory” as recited in claim 1.

As previously noted, Jenkins also does not teach or suggest “a test module card directly coupled to the first expansion slot” as recited in claim 1. The Office Action cites column 1, lines 31-32 of Jenkins as a teaching or suggestion of this feature of claim 1. At column 1, lines 31-32, Jenkins teaches “[a] specific module is provided to test each device.” This portion of Jenkins does not teach or suggest “a test module card directly coupled to the first expansion slot” as recited in claim 1.

Jenkins appears to teach a “hard disk drive 124” that contains a “diagnostic application 150” rather than a “test module card” as recited in claim 1. See, e.g., column 3, line 67 to column 4, line 2 and Figure 1. Jenkins also teaches PCI slots 120 and ISA slots 138. See Figure 1. Jenkins does not teach or suggest that the diagnostic application 150 is directly coupled to PCI slots 120 or ISA slots 138. Accordingly, Jenkins does not teach or suggest “a test module card directly coupled to the first expansion slot” as recited in claim 1.

As described above, Jenkins does not teach or suggest “a test module card directly coupled to the first expansion slot” or “wherein the test module card is configured to cause tests to be performed on the memory using direct memory access (DMA)” as recited in claim 1. Accordingly, Applicants respectively submits that claim 1 patentably distinguishes over Jenkins for at least these reasons. Claims 2-8 depend from claim 1 and are believed to patentably distinguish over the cited references for at least the above reasons. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 1-8 under 35 U.S.C. §102(b).

As previously noted, claim 6 further recites “wherein the read and write transactions comprise DMA transactions”. The Office Action cites column 3, line 56 of Jenkins as a teaching or suggestion of this feature of claim 6. At column 3, lines 55-57, Jenkins teaches that “[t]he PCI-to ISA bridge 122 integrates many of the common ISA peripherals, such as a DMA (Direct Memory Access) Controller” This portion of Jenkins only identifies the existence of a DMA controller and does not teach or suggest “wherein the read and write transactions comprise DMA transactions” as recited in claim

6. Accordingly, Applicants respectively submits that claim 6 patentably distinguishes over Jenkins for at least this additional reason.

Claim 9 recites, *inter alia*:

obtaining access to a portion of a memory of a computer system from an operating system during operation of a computer system;
generating a test transaction in a test module card directly coupled to an expansion slot of the computer system; and
providing the test transaction to the portion using direct memory access (DMA) subsequent to obtaining access to the portion of the memory.

Jenkins does not teach or suggest “obtaining access to a portion of a memory of a computer system from an operating system during operation of a computer system” or “providing the test transaction to the portion using direct memory access (DMA) subsequent to obtaining access to the portion of the memory” as recited in claim 9. At column 4, lines 24-34, Jenkins teaches the use of an operating system. This portion of Jenkins does not teach or suggest “obtaining access to a portion of a memory of a computer system from an operating system during operation of a computer system” as recited in claim 9. At column 3, lines 55-57, Jenkins teaches that “[t]he PCI-to ISA bridge 122 integrates many of the common ISA peripherals, such as a DMA (Direct Memory Access) Controller” This portion of Jenkins only identifies the existence of a DMA controller and does not teach or suggest “providing the test transaction to the portion using direct memory access (DMA) subsequent to obtaining access to the portion of the memory” as recited in claim 9. Further, Jenkins does not appear to teach or suggest that diagnostic application 150 “obtain[s] access to a portion of the memory from the operating system” or “provid[es] the test transaction to the portion using direct memory access (DMA) subsequent to obtaining access to the portion of the memory” as recited in claim 9.

As previously noted, Jenkins does not teach or suggest “generating a test transaction in a test module card directly coupled to an expansion slot of the computer system” as recited in claim 9. As described above with reference to claim 1, Jenkins appears to teach a “hard disk drive 124” that contains a “diagnostic application 150”

rather than a “test module card” as recited in claim 1. See, e.g., column 3, line 67 to column 4, line 2 and Figure 1. Jenkins also teaches PCI slots 120 and ISA slots 138. See Figure 1. Jenkins does not teach or suggest that the diagnostic application 150 is directly coupled to PCI slots 120 or ISA slots 138. Accordingly, Jenkins does not teach or suggest “generating a test transaction in a test module card directly coupled to an expansion slot of the computer system” as recited in claim 9.

As described above, Jenkins does not teach or suggest “obtaining access to a portion of a memory of a computer system from an operating system during operation of a computer system” or “providing the test transaction to the portion using direct memory access (DMA) subsequent to obtaining access to the portion of the memory” as recited in claim 9. Accordingly, Applicants respectfully submits that claim 9 patentably distinguishes over Jenkins for at least these reasons. Claims 10-14 depend from claim 9 and are believed to patentably distinguish over the cited references for at least the above reasons. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 9-14 under 35 U.S.C. §102(b).

Claim 15 recites, *inter alia*:

an expansion slot coupled to the I/O controller; and
a test module card directly coupled to the expansion
slot;
wherein the test module card is configured to obtain
access to a portion of the memory from an operating
system, and wherein the test module card is configured to
cause tests to be performed on the portion of the memory
by providing read transactions associated with the memory
to the I/O controller subsequent to obtaining access to the
portion of the memory.

Jenkins does not teach or suggest “wherein the test module card is configured to obtain access to a portion of the memory from an operating system, and wherein the test module card is configured to cause tests to be performed on the portion of the memory by providing read transactions associated with the memory to the I/O controller subsequent to obtaining access to the portion of the memory” as recited in claim 15. At column 3, lines 55-57, Jenkins teaches that “[t]he PCI-to ISA bridge 122 integrates many of the

common ISA peripherals, such as a DMA (Direct Memory Access) Controller” This portion of Jenkins only identifies the existence of a DMA controller and does not teach or suggest “wherein the test module card is configured to obtain access to a portion of the memory from an operating system, and wherein the test module card is configured to cause tests to be performed on the portion of the memory by providing read transactions associated with the memory to the I/O controller subsequent to obtaining access to the portion of the memory” as recited in claim 15. Further, Jenkins does not appear to teach or suggest that diagnostic application 150 is “configured to obtain access to a portion of the memory from the operating system” or is “configured to cause tests to be performed on the portion of the memory by providing read transactions associated with the memory to the I/O controller subsequent to obtaining access to the portion of the memory” as recited in claim 15.

As previously noted, Jenkins does not teach or suggest “a test module card directly coupled to the first expansion slot” as recited in claim 15. Similar to the rejection of claim 1 above, the Office Action cites column 1, lines 31-32 of Jenkins as a teaching or suggestion of this feature of claim 1. At column 1, lines 31-32, Jenkins teaches “[a] specific module is provided to test each device.” This portion of Jenkins does not teach or suggest “a test module card directly coupled to the expansion slot” as recited in claim 15.

As described above with reference to claim 1, Jenkins appears to teach a “hard disk drive 124” that contains a “diagnostic application 150” rather than a “test module card” as recited in claim 15. See, e.g., column 3, line 67 to column 4, line 2 and Figure 1. Jenkins also teaches PCI slots 120 and ISA slots 138. See Figure 1. Jenkins does not teach or suggest that the diagnostic application 150 is directly coupled to PCI slots 120 or ISA slots 138. Accordingly, Jenkins does not teach or suggest “a test module card directly coupled to the expansion slot” as recited in claim 15.

Accordingly, Applicants respectfully submits that claim 15 patentably distinguishes over Jenkins for at least these reasons. Claims 16-20 depend from claim 15 and are believed to patentably distinguish over the cited references for at least the above reasons. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 15-20 under 35 U.S.C. §102(b).

Amendment and Response under 37 C.F.R. 1.116

Applicant: Andrew W. Barr et al.

Serial No.: 10/714,386

Filed: Nov. 14, 2003

Docket No.: 200308581-1

Title: **SYSTEM AND METHOD FOR TESTING A MEMORY WITH AN EXPANSION CARD USING DMA**

As previously noted, claim 19 recites “wherein the test module card is configured to cause tests to be performed on the memory using direct memory access (DMA)”. Similar to the rejection of claim 1 above, the Office Action cites column 3, lines 55-57 of Jenkins as a teaching or suggestion of this feature of claim 19. At column 3, lines 55-57, Jenkins teaches that “[t]he PCI-to ISA bridge 122 integrates many of the common ISA peripherals, such as a DMA (Direct Memory Access) Controller” This portion of Jenkins only identifies the existence of a DMA controller and does not teach or suggest “wherein the test module card is configured to cause tests to be performed on the memory using direct memory access (DMA)” as recited in claim 19. Further, Jenkins does not appear to teach or suggest that diagnostic application 150 is “is configured to cause tests to be performed on the memory using direct memory access (DMA)” as recited in claim 19. Accordingly, Applicants respectfully submits that claim 19 patentably distinguishes over Jenkins for at least this additional reason.

CONCLUSION

In view of the above, Applicants respectfully submit that pending claims 1-20 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-20 is respectfully requested.

The Examiner is invited to contact the Applicants’ representative at the below-listed telephone numbers to facilitate prosecution of this application.

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USING DMA**

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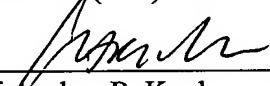
Respectfully submitted,

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